

CLAIMS:

1. A select control system for a vehicle transmission comprising:
 - a gate mechanism having plural gates, the respective plural gates being selected upon a shift operation;
 - a select position determining mechanism adapted to move along a select direction of the gate mechanism; and
 - select control means for controlling movement of the select position determining mechanism during the shift operation by performing a temporary target gate remaining process in which an actual gate temporarily remains at an temporary target gate and moves to a target gate.
2. A select control system for a vehicle transmission according to claim 1, wherein the temporary target gate is between the actual gate and the target gate, wherein at least one gate is skipped while the actual gate is moved to the target gate.
3. A select control system for a vehicle transmission according to claim 2, wherein the select control means performs the temporary target gate remaining process in response to a detected vehicle driving condition upon the shift operation.
4. A select control system for a vehicle transmission according to claim 3, wherein the select control means performs the temporary target gate remaining process when an output parameter related to a vehicle driving output is large.
5. A select control system for a vehicle transmission according to claim 4, wherein the vehicle driving output is large when at least one of an accelerating opening degree, a

throttle opening degree, a vehicle speed, an engine rotational speed, and a motor rotational speed is larger than a predetermined value.

6. A select control system for a vehicle transmission according to claim 2, wherein the select control means includes:

temporary target gate remaining judging means for judging that the actual gate has remained at the temporary target gate when the actual gate is judged to have remained at the temporary target gate for a predetermined period of time; and

shift operation allowing means for allowing the shift operation when a corresponding condition between the temporary target gate and the target gate is satisfied when the actual gate is judged to have remained at the temporary target gate.

7. A select control system for a vehicle transmission according to claim 6, wherein, the select control means determines the predetermined period of time in response to the vehicle driving condition upon the shift operation.

8. A select control system for a vehicle transmission according to claim 7, wherein the select position determining mechanism includes:

a base portion;

an engaged portion configured to be engaged with the base portion; and

an actuator adapted to move at least one of the base portion and the engaged portion.

9. A method of performing a shift operation for a vehicle, comprising the steps of:
determining a temporary target gate;

determining a temporary target gate remaining time;
judging whether an actual gate is at the temporary target gate;
counting the temporary target gate remaining time when the actual gate is judged to be at the temporary target gate;
judging whether the temporary target gate remaining time is more than a predetermined period of time;
judging that a corresponding condition between the temporary target gate and the target gate has been satisfied when the temporary target gate remaining time is judged to be more than the predetermined period of time;
completing a select operation; and
performing a shift operation when the corresponding condition has been satisfied.

10. A method of performing a shift operation according to claim 9, further comprising the step of:

prohibiting the shift operation when the temporary target gate remaining time is judged to be less than the predetermined period of time.

11. A method of performing a shift operation according to claim 10, wherein the shift operation prohibition step is performed when the corresponding condition between the temporary target gate and the target gate has not been satisfied.

12. A method of performing a shift operation according to claim 9, wherein the vehicle has the manual transmission including a gate mechanism comprising the actual gate currently being selected, the target gate, and the temporary target gate between the actual gate and the

target gate, wherein the temporary target gate is determined when a vehicle driving force output is large.

13. A method of performing a shift operation according to claim 9, wherein the temporary target gate remaining time is determined depending on a vehicle driving condition.

14. A select control system for a vehicle transmission in a vehicle having a vehicle driving power source and a transmitting path for transmitting a driving power from the vehicle driving power source, comprising:

a gate mechanism having plural gates for defining vehicle shift stages;

means for determining a select position to be established in the transmission;

means for operating the means for determining the select position; and

controlling means for controlling the means for operating the means for determining the select position such that an actual gate temporarily remains at a temporary target gate between the actual gate and a target gate before the actual gate reaches the target gate.

15. A select control system for a vehicle transmission according to claim 14, wherein the means for determining the select position to be established in the transmission includes a base portion supported by the transmission, an engaged portion selectively engaged with the base portion, and a shift and select shaft adapted to support the engaged portion.

16. A select control system for a vehicle transmission according to claim 15, wherein at least one of the base portion and the engaged portion is relatively movable in response to a select movement of the shift and select shaft operated by the means for operating the means for determining the select position.

17. A select control system for a vehicle transmission according to claim 16, wherein the base portion includes a ball portion, the engaged portion has at least a first groove, a second groove, and a third groove, each of which is selectively engagable with the ball portion, wherein the ball portion temporarily remains at the second groove before the ball portion is moved from the first groove to the third groove.

18. A select control system for a vehicle transmission according to claim 16, wherein the base portion includes a ball portion, the engaged portion has at least a first groove, a second groove, a third groove, and a fourth groove, each of which is selectively engagable with the ball portion, wherein the ball portion temporarily remains at least one of the second and third grooves before the ball portion is moved from the first groove to the fourth groove.